

TURBINE SHROUD ASYMMETRICAL COOLING ELEMENTS

ABSTRACT

A turbine shroud assembly asymmetrical cooling element such as a shroud segment or a baffle includes an arcuate panel. The panel has a plurality of cooling apertures extending through the panel and an axially extending midline of the panel parallel to an axis of rotation of the arcuate panel. A symmetric portion of the cooling apertures have a symmetrical density of aperture inlets that is symmetric with respect to the axially extending midline. An asymmetric portion of the cooling apertures have an asymmetrical density of aperture inlets that is asymmetric with respect to the axially extending midline. One exemplary cooling element includes a high density area of the cooling apertures in the asymmetric portion having a higher density of aperture inlets than in the symmetric portion. A low density area of the cooling apertures in the asymmetric portion has a lower density of aperture inlets than in the symmetric portion of the cooling apertures.